

QUEST

ADVENTURES IN THE WORLD OF SCIENCE

COMMUNICATIONS

3

FACT FILES ON:

- ▶ Messages from the sky
- ▶ Animal chat
- ▶ Electronic mail
- ▶ AudioVisual
- ▶ In search of E.T.
- ▶ The telephone revolution
- ▶ The print business
- ▶ Inside radio and TV

FOUR PROJECTS

GIANT POSTER: THE QUEST DATABASE



FREE GAME

UK £1.99 IRE £2.25 Aust \$4.95 NZ \$5.95
Malaysia \$7.95 Sing \$5.95 Malta LM1.75



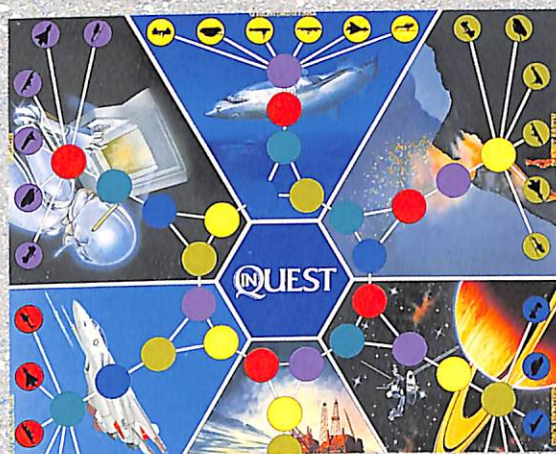


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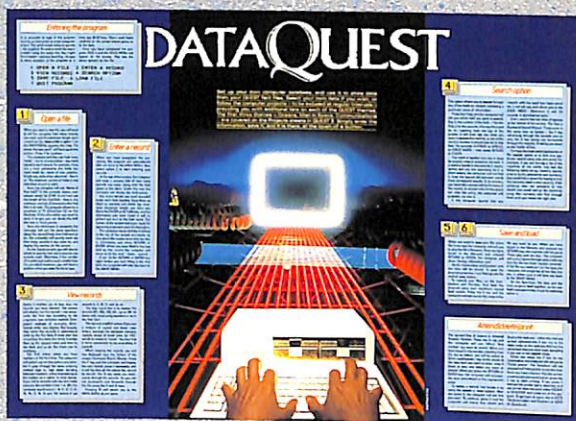
INSIDE THIS PACK

FACT FILES

- CD and Video ► Radio and TV
- Animal chat ► Messages to outer space ► Cellular phones
- Electronic mail ► Laser printing
- Telex and fax



GAME IN-QUEST, plus 90 starter questions



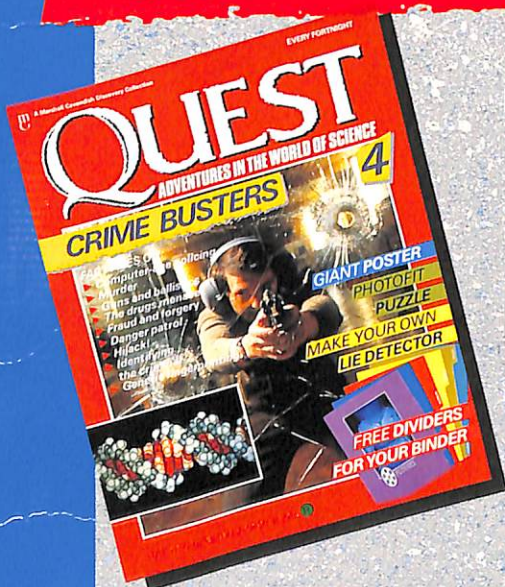
POSTER Quest database

PROJECTS

- Electric telegraph
- Make a time capsule
- Test your powers of ESP

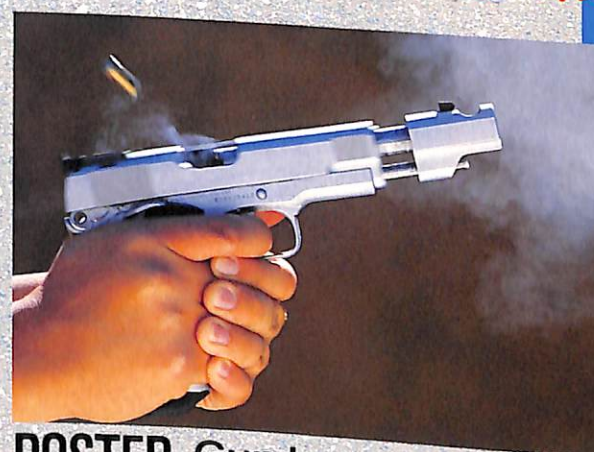


COMING IN QUEST 4 CRIME BUSTERS



FACT FILES include:

- Fingerprinting
- The science of murder
- Hijack!
- Computer crime
- Guns and ballistics



POSTER Gun law



PLUS

Your own photofit

FREE DIVIDER CARDS
for your binder

QUEST

and use it to store data
own data if you wish, or
ed at regular intervals –
n of the QUEST themes.
Space, Communications
EST 3. Simply enter the
touch of a button.

4

Search option

This option allows you to **search** through any of the fields for records containing a particular piece of information.

Press the 4 key, and the computer will ask you which field you want to **search**. Key in the number of the field – 1 for the first, 2 for the second, 3 for the third and so on, counting from the top of the screen. It will then ask you what you want to **search** that field for, so key in the word or number it should look for in that field. For example, EVEREST, or APOLLO, or GREAT WHITE – then press RETURN or ENTER.

The word or number you key in must be exactly what is written in the field. If a word is stored in the records in capital letters and you are searching for it in small letters, the computer will not find it. Even the spaces left between words must correspond exactly. If, by mistake, you have left a space before the entry in the record, or accidentally hit the space bar after the entry, the computer will probably not find it.

If the computer cannot find any

records with the word you have asked for, it will tell you and return you to the MAIN MENU. Otherwise it will list records in alphabetical order.

Every record has two lines of options at the bottom of the screen. The first is F(orward) B(ack) M(enu). These work in the same way as before – the F key advancing through the records one by one, the B key taking you backwards through the records, M taking you direct to the MAIN MENU.

Perhaps the most useful application of the **search** option is to find one particular record using only one word. For example, if you are storing a list of the countries of the world, and had the following fields set up: country, capital, area in sq km, population and currency, you could find a record by keying in only the currency used in that country. If the currency was not exclusive to that record you could call up the countries using that currency and flick through them until you found the right one.

5

6

Save and load

When you want to **save** your file, press the 5 key and the computer will ask you to give the file a filename. Once you have keyed in the filename and pressed RETURN or ENTER, the computer will show 'Saving information now'.

On the Commodore, only the data will be stored. To **save** the program press key 7 and then go into the normal **save** routine.

To consult your files, first **load** the program using your machine's normal **load** routine. Press the 6 key and the computer will ask you for the name of the

file you want to see. When you have keyed in the filename and pressed the RETURN key, the machine will tell you to 'Press play and any key'. The computer will search down the tape until it tells you that the file has been 'loaded correctly'. If the file you want isn't on the tape, the computer will simply list all the files that are. In either case it will take you back to the MAIN MENU.

On the Spectrum, the data and the main program **load** together, so you can **load** subsequent files simply by selecting option 6.

Amend/delete/print

The second line of options is A(mend) D(elete) P(rinter). Press the A key and the computer will ask 'Which field number' you want to amend. When you have keyed in the number, counting from the top as before, you will be asked to 'Enter modification'. Key in the whole of the new field you want to enter, even if there is only one letter you want to amend. When you press the RETURN or ENTER key, the computer will incorporate your amendment in the right place.

To delete a record, first locate it by using the **search** or **view** options. After you press D, the computer will ask 'Are you sure'. To continue, press Y, and the computer will delete that record and display the next one – either the next one

picked alphabetically if you are in the **view** mode, or the next one that has the same field that you have been searching if you are in the **search** mode.

When you press the P key on the Commodore, the computer will ask you to 'Check printer'. The Spectrum will not respond to P if the printer is not attached. Once you have checked that the printer is connected and switched on, press the C key to start printing. If you press C without the printer being attached, or if the printer does not work press ESCAPE or RUN/STOP and come out of the program. To get back in again, key in GOTO 100 (Commodore), or GOTO 30 (Spectrum).

Entering the program

It is essential to type in the program exactly as instructed to avoid computer errors. The white boxes indicate spaces – not graphics. Be sure to enter the exact number using the space key. You might find it easier – and less daunting – to type in short sections of the program at a

time, say 20-30 lines. Check each block carefully on the screen before going on to the next.

Once you have completed the program, SAVE it. Then RUN it and the seven options available on the MAIN MENU will appear on the screen:

- 1 OPEN A FILE
- 2 ENTER A RECORD
- 3 VIEW RECORDS
- 4 SEARCH OPTION
- 5 SAVE FILE
- 6 LOAD FILE
- 7 QUIT PROGRAM

DATAQ

Set up your own computer data from your QUEST fact files. Select and follow the computer projects – to providing you with additional lists. The first three themes – Oceans – are covered on the Projects sheet. Information, save it, and it is there.

1

Open a file

When you open a new file, you will need to tell the computer how many records you want, and the maximum length each record can be. **Open a file** is option 1 on the MAIN MENU, so press the 1 key. The words 'Are you sure?' will flash up on the screen. Press Y to continue.

The computer will then ask how many 'fields' – items of information – you want stored in each record. For example, if you are a keen astronomer the fields you need might be: name of star, position, brightness, date when observed – four in all. The maximum number of fields in any individual record is eight.

Next, the computer will ask, 'Name of first field?' In the example above, your answer would be STAR. It will then ask the length of the first field – that is, the maximum number of characters the first field is to hold. This program allows for a maximum of 19 characters. If the information you want to store is longer, you can divide the field into two or more pieces.

Once the information is complete, the computer will ask the same questions about the second field, third field and so on. The computer will quickly work out how many records it has room for, and display the number on the screen.

On the Spectrum only, you will also be asked to specify how many records you actually want. Otherwise, if the number of records you need is much smaller than the permitted maximum, you will have a problem when you **save** the file on tape.

2

Enter a record

When you have completed the procedure, the program will automatically take you back to the MAIN MENU. Now select option 2 to start entering your records.

At the top of the screen, the computer will keep a running tally of how many records you enter, along with the total space in the store. Under this line, the computer will display the field names.

Key in the details you want recorded under each field heading. Keep them as short as possible and within the maximum character length you have set. Press the ENTER or RETURN key, and the information you have keyed in will be printed out next to the field name. The bottom of the screen will clear, ready for you to key in the next piece of information.

The computer starts with the first field at the top of the screen and works its way down the screen each time you key in information and press RETURN or ENTER. When you have filled in the last field on the record the computer will move on to the next – blank – record. If you hit the RETURN or ENTER key again before you start filling in the first field, you will be taken back to the MAIN MENU, except on the Spectrum, where you have already specified a number of records.

3

View records

Option 3 enables you to look over the records you have entered. The screen will display the first record – not necessarily the first one according to the program's own selection method. Computers' methods of arranging alphabetical order vary slightly. But broadly, they select the records in alphabetical order by the first field. If more than one record has the same first letter, it orders them by the second letter, and then by the third, and so on. But there can be problems.

The first arises when you have numbers in the first field. The computer will select any number before any letter, but it goes through the same ordering method digit by digit when deciding between numbers, rather than looking at the number as a whole. In other words, if you fed in records with the first fields carrying the numbers from 1 to 100, the computer would select 1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 100 before it got

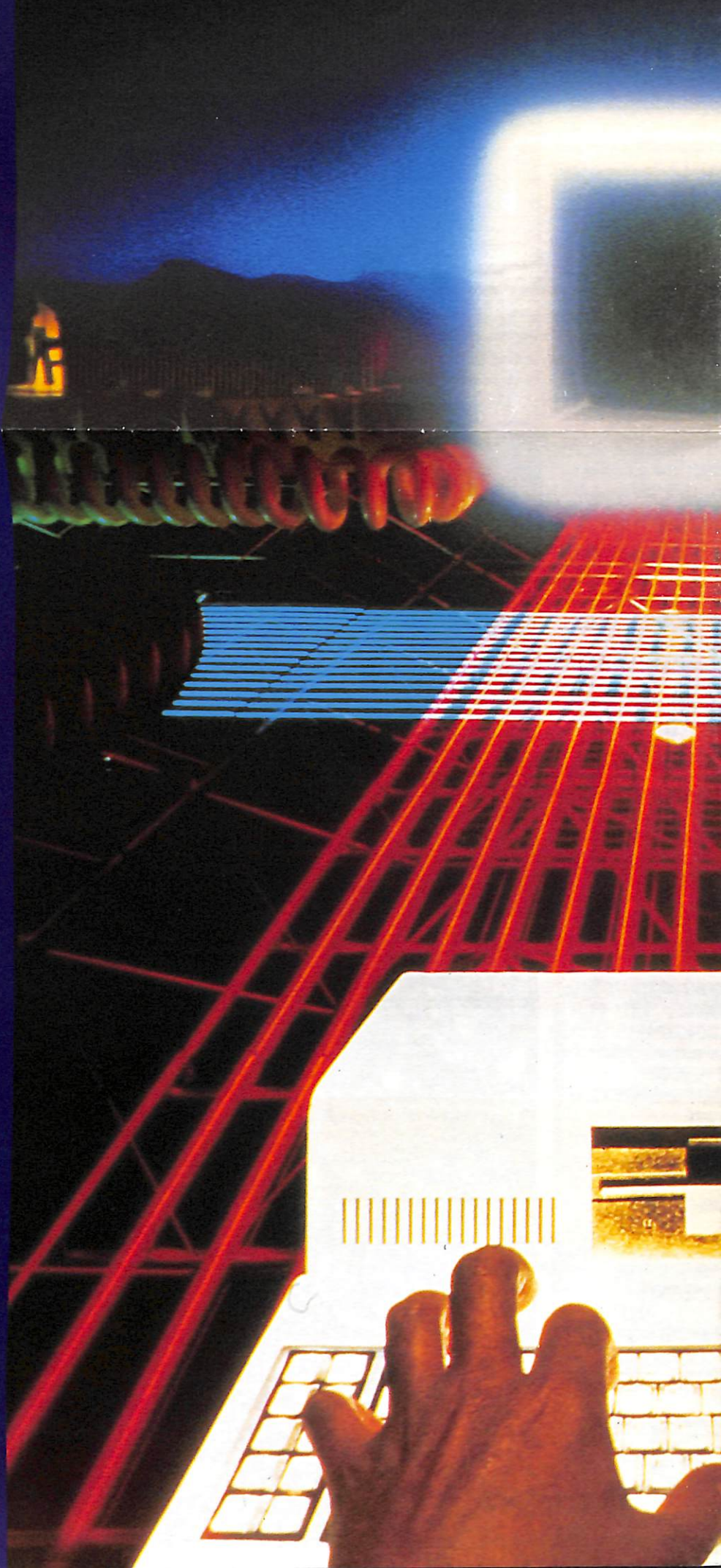
around to 2, 20, 21 and so on.

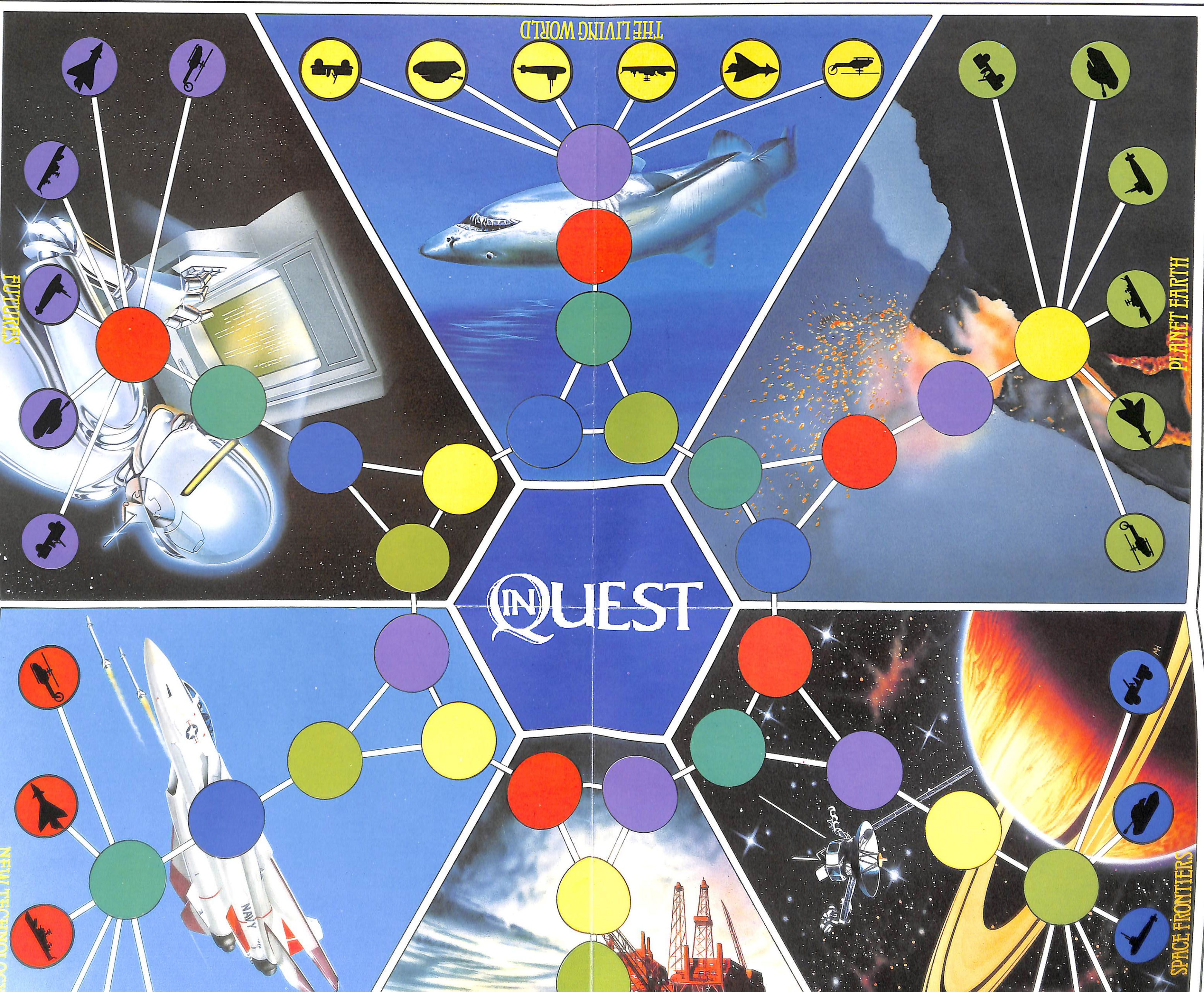
The way round this is to number the records 001, 002.. 010, 011.. up to 100. Or better still, avoid using numbers at all in the first field.

The second problem arises if you use a mixture of capital and lower case letters, because the computer chooses capitals ahead of lower case. So 'ABC' would be ahead of 'Aaron'. You may find it more convenient to list everything in capitals.

When viewing the records, you will see displayed near the bottom of the screen F(oward) B(ack) M(enu). Press the F key, and the computer will display the next record: press F repeatedly, and it will flip through the whole file, record by record. The B key takes you backwards through the records. So you can run backwards and forwards through the file using the F and B keys.

Pressing M will return you to the MAIN MENU at any point.





THE LIVING WORLD

PLANET EARTH

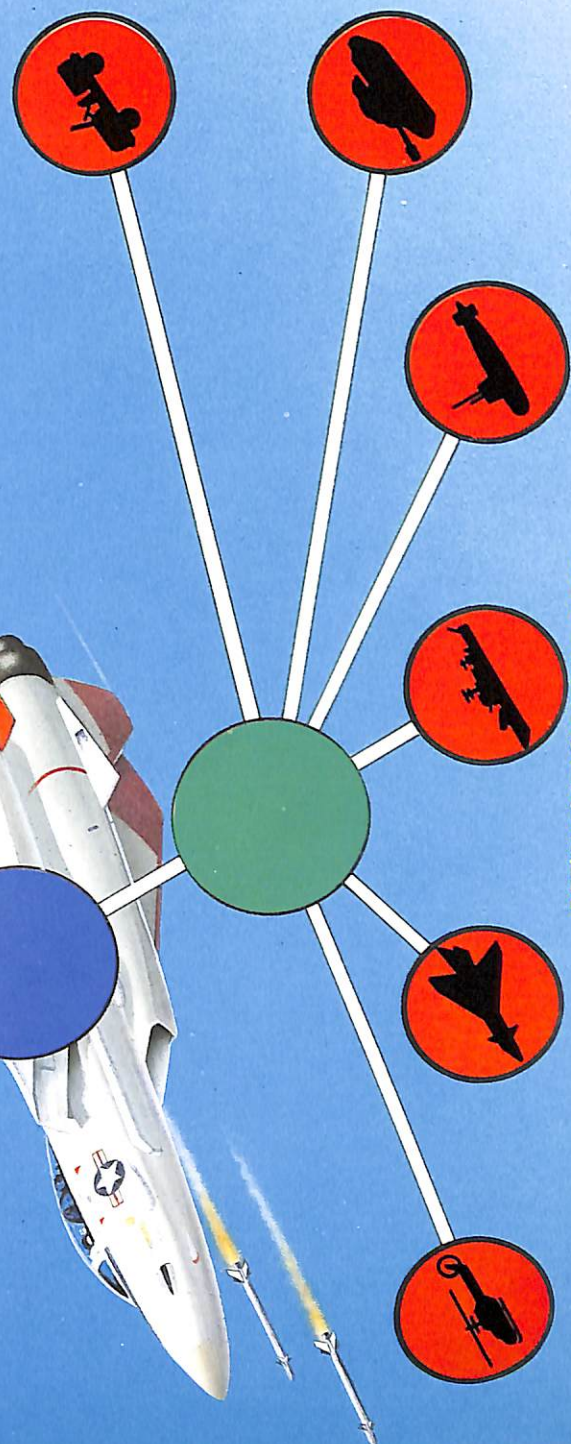
IN QUEST

SPACE FRONTIERS

FUTURES

NEW TECHNOLOGY

NEW TECHNOLOGY



ENERGY AND RESOURCES



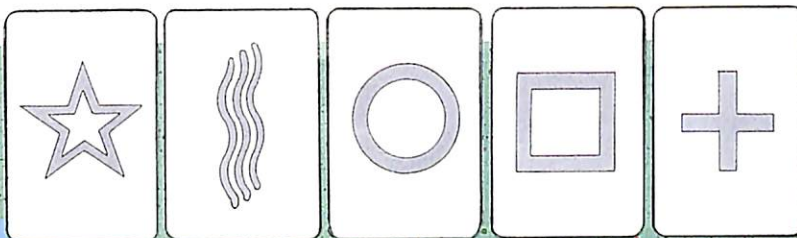
SPACE FRONTIERS



USA



PROJECTS



COMMUNICATIONS

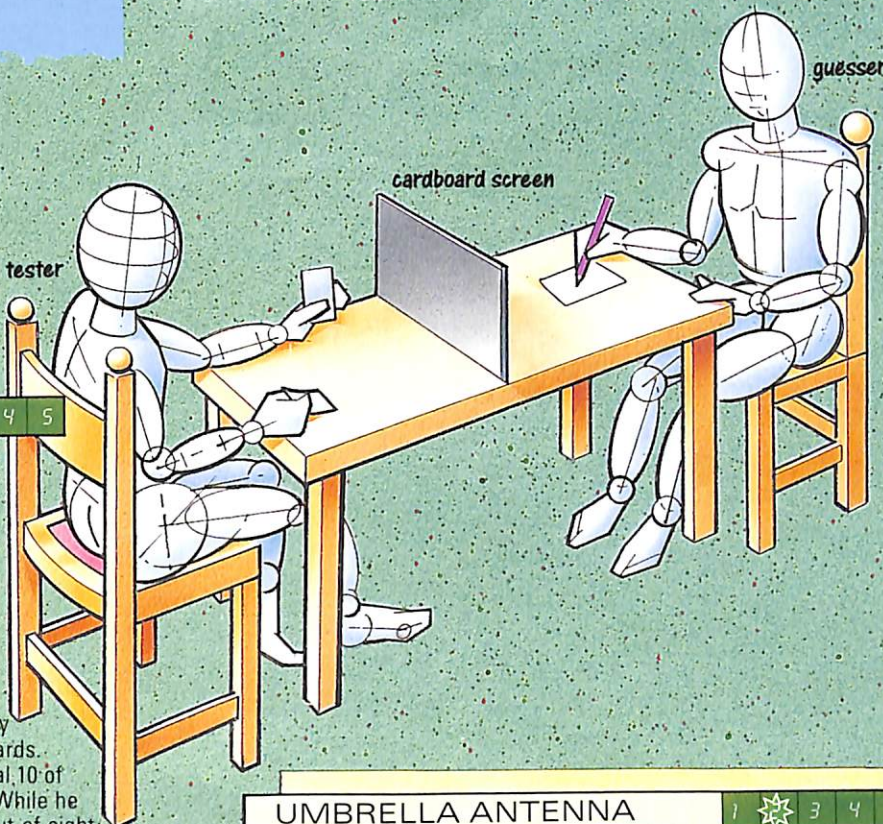
- Do you have powers of extra-sensory perception?
- How do dish antennas beam and pick-up signals?
- Build up your own computer database.
- What would you put in a time capsule to tell about your life?
- Make an electric telegraph to communicate with friends.

ESP EXPERIMENT

1 2 3 4 5

We experience the things around us by means of sight, hearing, touch, taste and smell. But is there a 'sixth sense'? Do we possess extrasensory perception (ESP)? Test your powers of ESP using mental telepathy.

Take 25 plain postcards and mark them with a star, cross, square, circle, or wavy lines, to get five sets of five identical cards. Get a friend to shuffle the cards and deal 10 of them face up on a table, one at a time. While he thinks about each card dealt, you sit out of sight of the cards and write down what you think each one is. By simply guessing, you should, on average, get two correct in every 10 predictions. If you consistently score more than this, it could be evidence that ESP exists in the form of telepathy. Now test for clairvoyance by trying to predict the cards before they are dealt.



TIME CAPSULE

1 2 3 4 5

A time capsule is a container of items chosen by people to show what life was like for them. Make one to open yourself in the year 2010 or maybe on your 21st birthday.

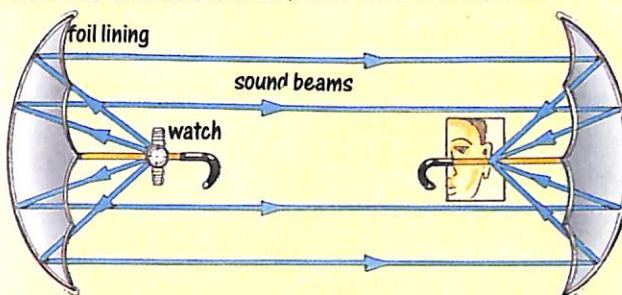
Put items that reveal various aspects of your life into an airtight plastic box. One sample list is shown here. Either bury the capsule in the garden or store it somewhere safe. Alternatively, get your class to make a capsule and exchange it with another school. You could open this immediately.

EDUCATION	DETAILS OF SCHOOL, PUPILS, THEIR AGES
FOOD	WRAPPERS FROM FOOD CANS + PACKETS
SCIENCE	IMPORTANT DISCOVERIES OF THE YEAR
SPORT	CURRENT SPORTING WORLD RECORDS
TRANSPORT	CUTTINGS OF THE LATEST ADVANCES
POLITICS	RESULTS OF THE LAST GEN. ELECTION
FAMILY	PHOTOS OF FAMILY AND NOTE THEIR JOBS
LEISURE	TAKE A PICTURE OF YOURSELF HAVING FUN!
CLOTHING	FASHION CUTTINGS FROM MAIL ORDER CATALOGUE
CRIME	NEWS STORY OF LATEST CRIME FIGS.

UMBRELLA ANTENNA

1 2 3 4 5

Demonstrate the principle of dish-shaped radio and television antennas using umbrellas to transmit and receive a beam of sound waves. Point the handles at one another, a few metres apart.



Line the insides of two open umbrellas with kitchen foil to make them reflect sound. Get a friend to hold a ticking watch near one umbrella while you listen near the other. The sound beam will be picked up and relayed so that the ticking is clearly heard.

PROJECT INFORMATION

Each QUEST project has its own difficulty rating: 1 very simple, 2 simple, 3 intermediate, 4 advanced, 5 complicated.

1 2 3 4 5

WARNING!

Parents should supervise experiments involving sharp tools, water and electricity. The publisher can accept no responsibility for injury.

DATAQUEST

OCEANS: DEEP-SEA TRENCHES

Length (km)	Name	Sea region	Depth (m)
2,250	Marianas Trench	W Pacific	11,033
2,575	Tonga-Kermadec Trench	S Pacific	10,850
2,250	Kuril-Kamchatka Trench	W Pacific	10,542
1,325	Philippine Trench	W Pacific	10,539
1,325	Idzu-Bonin Trench	W Pacific	9,810
320	New Hebrides Trench	S Pacific	9,165
640	Solomon Trench	S Pacific	9,140
800	Puerto Rico Trench	W Atlantic	8,648

COMMUNICATIONS: TELEPHONES

Region	Number connected	% of world	Per 100 of Popn.
North America	156,880,000	30.2	74.2
Europe	182,441,000	35.0	38.0
Far East	92,296,000	17.7	26.5
South & Central America	23,012,000	4.5	6.7
CIS	34,000,000	6.5	*
Middle East & SE Asia	13,822,000	2.6	1.1
Africa	8,759,000	1.7	1.8
South Pacific	9,894,000	1.9	2.0
World	521,104,000	100	17.1

N.B. Figs are estimates. *Precise figs are unobtainable

Lists of data relating to each of the Quest themes will be given as projects in every third issue.

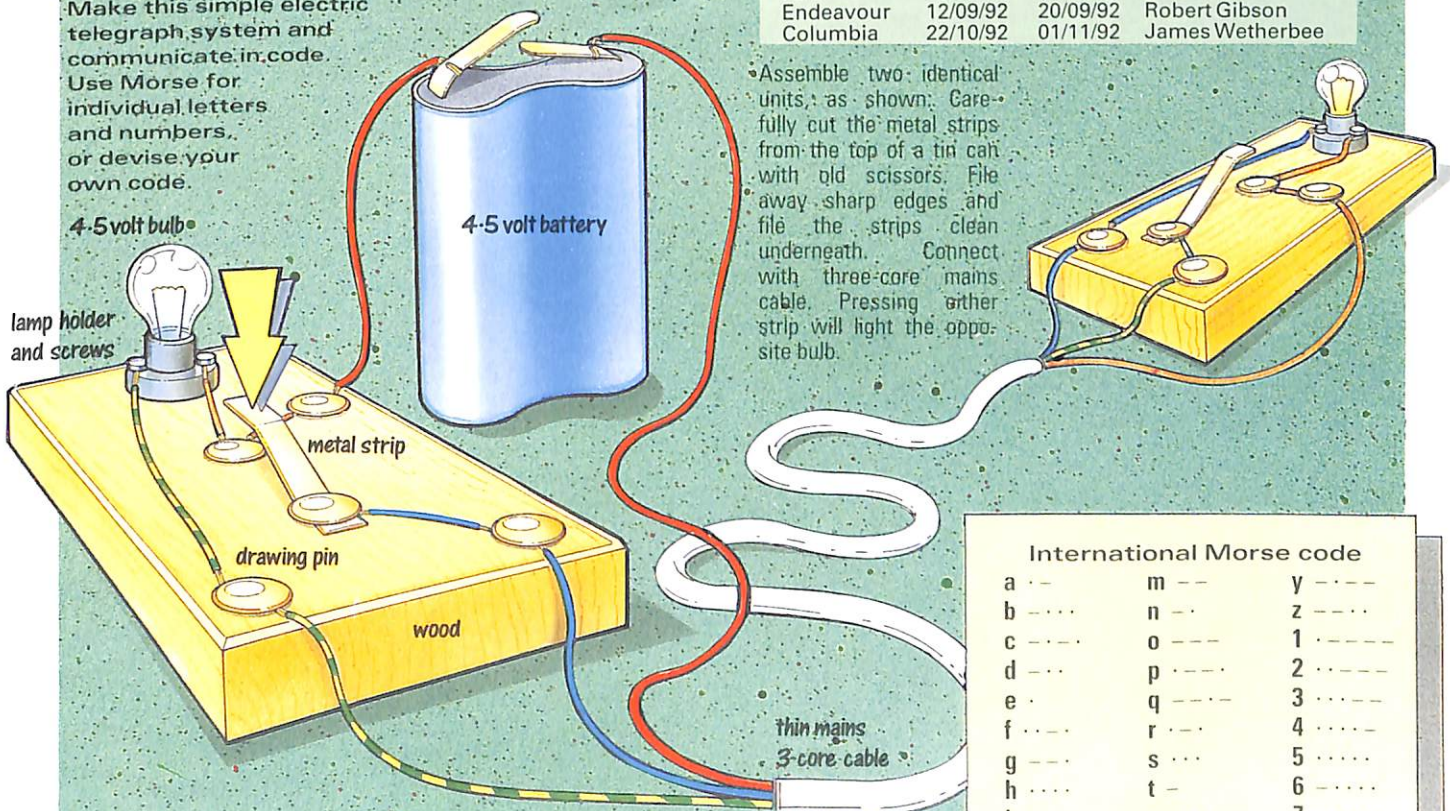
ELECTRIC TELEGRAPH

1 2 3 4 5

Make this simple electric telegraph system and communicate in code. Use Morse for individual letters and numbers, or devise your own code.

4-5 volt bulb

4-5 volt battery



Assemble two identical units, as shown. Carefully cut the metal strips from the top of a tin can with old scissors. File away sharp edges and file the strips clean underneath. Connect with three-core mains cable. Pressing either strip will light the opposite bulb.

International Morse code

a	— ·	m	— · —	y	— · — · —
b	— · · ·	n	— ·	z	— · — ·
c	— · — ·	o	— —	1	— · — — —
d	— · ·	p	— · · ·	2	— · — ·
e	·	q	— · — —	3	— · — ·
f	· · ·	r	· — ·	4	— · — ·
g	— · —	s	· · ·	5	— · — ·
h	· · · ·	t	—	6	— · — ·
i	· ·	u	— · —	7	— · — ·
j	— · — ·	v	· · · —	8	— · — ·
k	— · —	w	— · — ·	9	— · — ·
l	— · — ·	x	— · — ·	0	— — — —

Counters and the first 15 cards for IN-QUEST are given on the separate sheet of card. Cut them out and keep them safely in a container. Another 18 cards will appear in QUEST pack 6. If you have lost the rules of the game, given in the brochure with pack 1, they will be given again on a separate sheet in QUEST pack 4.

FIRST 50 SPACE SHUTTLE MISSIONS

Shuttle	Launch	Land	Commander
Columbia	12/04/81	14/04/81	John Young
Columbia	12/11/81	14/11/81	Joe Engle
Columbia	22/03/82	30/03/82	Jack Lousma
Columbia	27/06/82	04/07/82	Ken Mattingly
Columbia	11/11/82	16/11/82	Vance Brand
Challenger	04/04/83	09/04/83	Paul Weitz
Challenger	18/06/83	24/06/83	Robert Crippen
Challenger	30/08/83	05/09/83	Richard Truly
Columbia	28/11/83	08/12/83	John Young
Challenger	03/02/84	11/02/84	Vance Brand
Challenger	06/04/84	13/04/84	Robert Crippen
Discovery	30/08/84	05/09/84	Hank Hartsfield
Challenger	05/10/84	13/10/84	Robert Crippen
Discovery	08/11/84	16/11/84	Rick Hauck
Discovery	24/01/85	27/01/85	Ken Mattingly
Discovery	12/04/85	19/04/85	Karol J. Bobko
Challenger	29/04/85	06/05/85	Robert Overmyer
Discovery	17/06/85	24/06/85	Dan Brandenstein
Challenger	29/07/85	06/08/85	Gordon Fullerton
Discovery	27/08/85	03/09/85	Joe Engle
Atlantis	03/10/85	07/10/85	Karol J. Bobko
Challenger	30/10/85	06/11/85	Hank Hartsfield
Atlantis	26/11/85	03/12/85	Brewster Shaw
Columbia	12/01/86	18/01/86	Robert Gibson
Challenger	28/01/86	(exploded)	Dick Scobee
Discovery	29/09/88	03/10/88	Rick Hauck
Atlantis	02/12/88	06/12/88	Robert Gibson
Discovery	13/03/89	18/03/89	Michael Coats
Atlantis	04/05/89	08/05/89	David Walker
Columbia	08/08/89	13/08/89	Brewster Shaw
Atlantis	18/10/89	23/10/89	Donald Williams
Discovery	23/11/89	27/11/89	Fred Gregory
Columbia	09/01/90	20/01/90	Dan Brandenstein
Atlantis	28/02/90	04/03/90	John Creighton
Discovery	24/04/90	29/04/90	Loren Shriver
Discovery	06/10/90	10/10/90	Richard Richards
Atlantis	15/11/90	20/11/90	Richard Covey
Columbia	02/12/90	11/12/90	Vance Brand
Atlantis	05/04/91	11/04/91	Steven Nagel
Discovery	28/04/91	06/05/91	Michael Coats
Columbia	05/06/91	14/06/91	Bryan O'Connor
Atlantis	02/08/91	11/08/91	John Blaha
Discovery	13/09/91	18/09/91	John Creighton
Atlantis	24/11/91	01/12/91	Fred Gregory
Discovery	22/01/92	30/01/92	Ronald Grabe
Atlantis	24/03/92	02/04/92	Charles Bolden
Endeavour	07/05/92	16/05/92	Dan Brandenstein
Atlantis	31/07/92	08/08/92	Loren Shriver
Endeavour	12/09/92	20/09/92	Robert Gibson
Columbia	22/10/92	01/11/92	James Wetherbee

A Marshall Cavendish Collection

QUEST

ADVENTURES IN THE WORLD OF SCIENCE

MONEY

15

**GOLDEN
NUGGET
GAMBLING HALL**



PROJECTS

**GIANT POSTER:
THE WEALTH OF NATIONS**

FACT FILES ON:

- ▶ Foiling the forgers
- ▶ Turning alloys into coins
- ▶ The commodities market
- ▶ Plastic money
- ▶ Inside the Stock Exchange
- ▶ Oil – black gold
- ▶ The latest slot machines

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